I CLAIM:

1. A semiconductor device comprising:

a die-mounting substrate having a die-mounting surface and formed with at least one conductive contact on said die-mounting surface;

at least one semiconductor die attached to said die-mounting surface, having a pad-mounting surface opposite to said die-mounting surface, and formed with at least one bonding pad on said pad-mounting surface;

a dielectric interposer provided on said die-mounting surface and formed with at least one pad-through-hole and at least one contact-through-hole, said pad-through-hole receiving said die therein and exposing said pad-mounting surface therefrom, said contact-through-hole being registered with said contact and exposing said contact therefrom;

at least one conductive strip formed on said pad-mounting surface and said interposer, said conductive strip having a pad-connecting part that is electrically connected to and that extends from said bonding pad, and a trace part that extends from said pad-connecting part to connect electrically with said contact;

an encapsulant layer formed on said die-mounting surface, said interposer, said conductive

strip, and said pad-mounting surface of said die, and formed with at least one bump-through-hole which exposes a portion of said trace part of said conductive strip therefrom; and

at least one solder bump which fills said bump-through-hole to connect electrically with said portion of said trace part of said conductive strip and which protrudes outwardly from said encapsulant layer.

2. The semiconductor device of Claim 1, wherein said conductive strip is made from conductive paste.

3. The semiconductor device of Claim 1, wherein said die-mounting substrate is a rigid substrate, and is made from a material that is selected from a group consisting of polyimide, glass, and ceramic.

4. The semiconductor device of Claim 1, wherein said die-mounting substrate is a printed circuit board.

5. The semiconductor device of Claim 1, wherein said trace part of said conductive strip has a metal layer that is electrically connected to said solder bump and that includes a nickel sub-layer and a gold sub-layer.

6. The semiconductor device of Claim 1, wherein said encapsulant layer is made from a material that is selected from a group consisting of photo ink and polyimide.

7. The semiconductor device of Claim 1, wherein said

interposer is a resinous packaging substrate.

8. The semiconductor device of Claim 1, wherein said interposer is made from a material that is selected from a group consisting of photo ink and polyimide.

9. A semiconductor device comprising:

a die-mounting substrate having a die surface that is indented to form at least one die-mounting recess;

at least one semiconductor die received in said die-mounting recess, having a pad-mounting surface that is exposed from said die-mounting recess, and formed with at least one bonding pad on said pad-mounting surface;

at least one conductive strip formed on said pad-mounting surface and said die surface, said conductive strip having a pad-connecting part that is electrically connected to and that extends from said bonding pad, and a trace part that extends from said pad-connecting part in a lateral direction relative to said die surface and that is formed on said die surface;

an encapsulant layer formed on said die surface, said conductive strip, and said pad-mounting surface of said die, and formed with at least one bump-through-hole which exposes a portion of said trace part of said conductive strip therefrom; and

at least one solder bump which fills said

bump-through-hole to connect electrically with said portion of said trace part of said conductive strip and which protrudes outwardly from said encapsulant layer.

10. The semiconductor device of Claim 9, wherein said conductive strip is made from conductive paste.

11. The semiconductor device of Claim 9, wherein said trace part of said conductive strip has a metal layer that is electrically connected to said solder bump and that includes a nickel sub-layer and a gold sub-layer.

12. A semiconductor device comprising:

a die-mounting substrate having a die-mounting surface and formed with at least one conductive contact on said die-mounting surface;

at least one first conductive strip formed on said die-mounting surface, said first conductive strip being electrically connected to and extending from said contact in a lateral direction relative to said die-mounting surface;

at least one semiconductor die attached to said die-mounting surface, having a pad-mounting surface opposite to said die-mounting surface, and formed with at least one bonding pad on said pad-mounting surface;

at least one second conductive strip which is formed on said pad-mounting surface and which is

electrically connected to and which extends from said bonding pad in said lateral direction to connect electrically with a first portion of said first conductive strip;

an encapsulant layer formed on said die-mounting surface, said first and second conductive strips, and said pad-mounting surface of said die, and formed with first and second bump-through-holes, said first bump-through-hole exposing a second portion of said first conductive strip therefrom, said second bump-through-hole exposing a portion of said second conductive strip therefrom, said first and second portions of said first conductive strip being offset from each other in said lateral direction; and

first and second solder bumps, said first solder bump filling said first bump-through-hole to connect electrically with said second portion of said first conductive strip and protruding outwardly from said encapsulant layer, said second solder bump filling said second bump-through-hole to connect electrically with said portion of said second conductive strip and protruding outwardly from said encapsulant layer.

13. The semiconductor device of Claim 12, wherein said first conductive strip has a first metal layer that is electrically connected to said first solder bump

and that includes a nickel sub-layer and a gold sub-layer.

14. The semiconductor device of Claim 12, wherein said second conductive strip has a second metal layer that is electrically connected to said second solder bump and that includes a nickel sub-layer and a gold sub-layer.

15. A semiconductor device comprising:

a die-mounting substrate having a die-mounting surface and formed with at least one conductive contact on said die-mounting surface;

at least one first semiconductor die attached to said die-mounting surface, having a pad-mounting surface opposite to said die-mounting surface, and formed with at least one bonding pad on said pad-mounting surface;

a dielectric interposer provided on said die-mounting surface and formed with at least one pad-through-hole and at least one contact-through-hole, said pad-through-hole receiving said die therein and exposing said pad-mounting surface therefrom, said contact-through-hole being registered with said contact and exposing said contact therefrom;

at least one first conductive strip formed on said pad-mounting surface of said first semiconductor die and said interposer, said first conductive strip

having a pad-connecting part that is electrically connected to and that extends from said bonding pad of said first semiconductor die, and a trace part that extends from said pad-connecting part to connect electrically with said conductive contact;

a first encapsulant layer formed on said die-mounting surface, said interposer, said first conductive strip, and said pad-mounting surface of said first semiconductor die, and formed with at least one strip-through-hole which exposes a portion of said trace part of said first conductive strip therefrom;

at least one second semiconductor die attached to said first encapsulant layer, having a pad-mounting surface, and formed with at least one bonding pad on said pad-mounting surface of said second semiconductor die;

at least one second conductive strip which is formed on said first encapsulant layer, which is electrically connected to said bonding pad of said second semiconductor die, and which fills said strip-through-hole to connect electrically with said portion of said first conductive strip;

a second encapsulant layer formed on said first encapsulant layer, said second semiconductor die, and said second conductor strip, and formed with at least one bump-through-hole which exposes a portion

of said second conductive strip; and

at least one solder bump which fills said bump-through-hole to connect electrically with said portion of said second conductive strip and which protrudes outwardly from said second encapsulant layer.

16. The semiconductor device of Claim 15, wherein said first conductive strip has a first metal layer that is electrically connected to said second conductive strip and that includes a nickel sub-layer and a gold sub-layer.

17. The semiconductor device of Claim 15, wherein said second conductive strip has a second metal layer that is electrically connected to said solder bump and that includes a nickel sub-layer and a gold sub-layer.

18. A semiconductor device comprising:

a die-mounting substrate having a die-mounting surface and formed with at least one conductive contact on said die-mounting surface;

at least one semiconductor semi-package attached to said die-mounting surface, and including

a semiconductor die that is attached to said die-mounting surface, that has a pad-mounting surface opposite to said die-mounting surface, and that is formed with at least one bonding pad on said pad-mounting surface,

at least one first conductive strip which is

formed on said pad-mounting surface and which is electrically connected to and which extends from said bonding pad in a lateral direction relative to said pad-mounting surface, and

a first encapsulant layer formed on said pad-mounting surface and said first conductive strip, and formed with at least one strip-through-hole which exposes a portion of said first conductive strip therefrom;

a dielectric interposer provided on said die-mounting surface and formed with at least one die-through-hole and at least one contact-through-hole, said die-through-hole receiving said semi-package therein and exposing said semi-package therefrom, said contact-through-hole being registered with said contact and exposing said contact therefrom;

at least one second conductive strip formed on said interposer and said semi-package, said second conductive strip having a first portion that fills said strip-through-hole to connect electrically with said portion of said first conductive strip, and a second portion that fills said contact-through-hole to connect electrically with said contact;

a second encapsulant layer formed on said interposer, said second conductive strip, and said semi-package, and formed with at least one bump-

through-hole which exposes a third portion of said second conductive strip therefrom; and

at least one solder bump which fills said bump-through-hole to connect electrically with said third portion of said second conductive strip and which protrudes outwardly from said second encapsulant layer.

19. The semiconductor device of Claim 18, wherein said first and second conductive strips are made from conductive paste.

20. The semiconductor device of Claim 18, wherein said first conductive strip has a first metal layer that is electrically connected to said second conductive strip and that includes a nickel sub-layer and a gold sub-layer.

21. The semiconductor device of Claim 18, wherein said second conductive strip has a second metal layer that is electrically connected to said solder bump and that includes a nickel sub-layer and a gold sub-layer.

22. A method for making a semiconductor device, comprising the steps of:

preparing a die-mounting substrate that has a die-mounting surface and that is formed with at least one conductive contact on said die-mounting surface;

preparing a semiconductor die that has a pad-mounting surface, and at least one bonding pad formed on said pad-mounting surface;

attaching said semiconductor die to said die-mounting surface;

preparing a dielectric interposer that is formed with a pad-through-hole and at least one contact-through-hole;

attaching said interposer to said die-mounting surface in such a manner that said die is received in and has said pad-mounting surface thereof exposed from said pad-through-hole and that said contact is registered with and is exposed from said contact-through-hole;

forming at least one conductive strip on said pad-mounting surface and said interposer, said conductive strip having a pad-connecting part that is electrically connected to and that extends from said bonding pad, and a trace part that extends from said pad-connecting part to connect electrically with said conductive contact;

forming an encapsulant layer on said die-mounting surface, said interposer, and said conductive strip;

forming at least one bump-through-hole in said encapsulant layer in such a manner that said bump-through-hole exposes a portion of said trace part of said conductive strip; and

forming at least one solder bump which fills said bump-through-hole to connect electrically with said

portion of said trace part of said conductive strip, and which protrudes outwardly from said encapsulant layer.

23. The method of Claim 22, wherein said die-mounting substrate is a printed circuit board.

24. The method of Claim 22, wherein said die-mounting substrate is a rigid substrate, and is made from a material that is selected from a group consisting of polyimide, glass, and ceramic.

25. The method of Claim 22, wherein said conductive strip is made from conductive paste.

26. The method of Claim 22, wherein said trace part of said conductive strip has a metal layer and includes a nickel sub-layer and a gold sub-layer.

27. The method of Claim 22, wherein said encapsulant layer is made from a material that is selected from a group consisting of photo ink and polyimide.

28. The method of Claim 34, wherein said interposer is a resinous packaging substrate.

29. A method for making a semiconductor device, comprising the steps of:

preparing a die-mounting substrate that has a die-mounting surface and that is formed with at least one conductive contact on said die-mounting surface;

preparing a semiconductor die that has a pad-mounting surface, and at least one bonding pad formed on said pad-mounting surface;

forming a dielectric interposer on said die-mounting surface and said contacts;

patterning and etching said interposer to form a pad-through-hole and at least one contact-through-hole in said interposer in such a manner that said contact is registered with and is exposed from said contact-through-hole;

mounting said die on said die-mounting surface within said pad-through-hole;

forming at least one conductive strip on said pad-mounting surface and said interposer, said conductive strip having a pad-connecting part that is electrically connected to and that extends from said bonding pad, and a trace part that extends from said pad-connecting part to connect electrically with said conductive contact;

forming an encapsulant layer on said die-mounting surface, said interposer, and said conductive strip;

forming at least one bump-through-hole in said encapsulant layer in such a manner that said bump-through-hole exposes a portion of said trace part of said conductive strip; and

forming at least one solder bump which fills said bump-through-hole to connect electrically with said portion of said trace part of said conductive strip, and which protrudes outwardly from said encapsulant

layer.

30. The method of Claim 29, wherein said interposer is made from a material that is selected from a group consisting of photo ink and polyimide.

31. The method of Claim 29, wherein said conductive strip is made from conductive paste.

32. The method of Claim 29, wherein said trace part of said conductive strip has a metal layer and includes a nickel sub-layer and a gold sub-layer.

33. The method of Claim 29, wherein said die-mounting substrate is a printed circuit board.

34. The method of Claim 29, wherein said die-mounting substrate is a rigid substrate, and is made from a material that is selected from a group consisting of polyimide, glass, and ceramic.

35. A method for making a semiconductor device, comprising the steps of:

preparing a die-mounting substrate that has a die-mounting surface which is indented to form a die-mounting recess;

preparing a semiconductor die that has a pad-mounting surface, and at least one bonding pad formed on said pad-mounting surface;

mounting said die in said die-mounting recess;

forming at least one conductive strip on said pad-mounting surface and said die-mounting surface, said conductive strip having a pad-connecting part

that is electrically connected to and that extends from said bonding pad, and a trace part that extends from said pad-connecting part in a lateral direction relative to said die-mounting surface and that is formed on said die-mounting surface;

forming an encapsulant layer on said die-mounting surface and said conductive strip;

forming at least one bump-through-hole in said encapsulant layer in such a manner that said bump-through-hole exposes a portion of said trace part of said conductive strip; and

forming at least one solder bump which fills said bump-through-hole to connect electrically with said portion of said trace part of said conductive strip, and which protrudes outwardly from said encapsulant layer.

36. The method of Claim 35, wherein said trace part of said conductive strip has a metal layer and includes a nickel sub-layer and a gold sub-layer.

37. The method of Claim 35, wherein said die is a central processing unit.

38. The method of Claim 35, wherein said die is a chip set.

39. A method for making a semiconductor device, comprising the steps of:

preparing a die-mounting substrate that has a die-mounting surface and that is formed with at least

one conductive contact on said die-mounting surface;

forming at least one first conductive strip on said die-mounting surface, said first conductive strip being electrically connected to and extending from said contact in a lateral direction relative to said die-mounting surface;

preparing a semiconductor die that has a pad-mounting surface, and that is formed with at least one bonding pad on said pad-mounting surface;

attaching said semiconductor die to said die-mounting surface;

forming at least one second conductive strip on said pad-mounting surface, said second conductive strip being electrically connected to and extending from said bonding pad in said lateral direction to connect electrically with a first portion of said first conductive strip;

forming an encapsulant layer on said die-mounting surface, said first and second conductive strips, and said pad-mounting surface of said die;

patterning and etching said encapsulant layer to form first and second bump-through-holes in said encapsulant layer in such a manner that said first bump-through-hole exposes a second portion of said first conductive strip therefrom, and that said second bump-through-hole exposes a portion of said second conductive strip therefrom, said first and

second portions of said first conductive strip being offset from each other in said lateral direction; and

forming first and second solder bumps in such a manner that said first solder bump fills said first bump-through-hole to connect electrically with said second portion of said first conductive strip and protrudes outwardly from said encapsulant layer, and that said second solder bump fills said second bump-through-hole to connect electrically with said portion of said second conductive strip and protrudes outwardly from said encapsulant layer.

40. The method of Claim 39, wherein said trace part of said first conductive strip has a first metal layer and includes a nickel sub-layer and a gold sub-layer.

41. The method of Claim 39, wherein said trace part of said second conductive strip has a second metal layer and includes a nickel sub-layer and a gold sub-layer.

42. A method for making a semiconductor device, comprising the steps of:

preparing a die-mounting substrate that has a die-mounting surface and that is formed with at least one conductive contact on said die-mounting surface;

preparing a first semiconductor die that has a pad-mounting surface, and that is formed with at least one bonding pad on said pad-mounting surface;

attaching said first semiconductor die to said

die-mounting surface;

preparing a dielectric interposer that is formed with a pad-through-hole and at least one contact-through-hole;

attaching said dielectric interposer to said die-mounting surface in such a manner that said pad-through-hole receives said first semiconductor die therein and exposes said pad-mounting surface therefrom, and that said contact-through-hole is registered with said contact and exposes said contact therefrom;

forming at least one first conductive strip on said pad-mounting surface of said first semiconductor die and said interposer, said first conductive strip having a pad-connecting part that is electrically connected to and that extends from said bonding pad of said first semiconductor die, and a trace part that extends from said pad-connecting part to connect electrically with said conductive contact;

forming a first encapsulant layer on said die-mounting surface, said interposer, said first conductive strip, and said pad-mounting surface of said first semiconductor die;

patterning and etching said first encapsulant layer to form at least one strip-through-hole in said first encapsulant layer in such a manner that said strip-through-hole exposes a portion of said trace

part of said first conductive strip therefrom;

preparing a second semiconductor die that has a pad-mounting surface, and that is formed with at least one bonding pad on said pad-mounting surface of said second semiconductor die;

attaching said second semiconductor die to said first encapsulant layer;

forming at least one second conductive strip on said first encapsulant layer, said second conductive strip being electrically connected to said bonding pad of said second semiconductor die and filling said strip-through-hole to connect electrically with said portion of said trace part of said first conductive strip;

forming a second encapsulant layer on said first encapsulant layer, said second semiconductor die, and said second conductor strip;

patterning and etching said second encapsulant layer to form at least one bump-through-hole in said second encapsulant layer in such a manner that said bump-through-hole exposes a portion of said second conductive strip; and

forming at least one solder bump which fills said bump-through-hole to connect electrically with said portion of said second conductive strip and which protrudes outwardly from said second encapsulant layer.

43. The method of Claim 42, wherein said trace part of said first conductive strip has a first metal layer and includes a nickel sub-layer and a gold sub-layer.

44. The method of Claim 42, wherein said trace part of said second conductive strip has a second metal layer and includes a nickel sub-layer and a gold sub-layer.

45. A method for making a semiconductor device, comprising the steps of:

preparing a die-mounting substrate that has a die-mounting surface and that is formed with at least one conductive contact on said die-mounting surface;

preparing a semiconductor semi-package that is formed by

preparing a semiconductor die that has a pad-mounting surface, and that is formed with at least one bonding pad on said pad-mounting surface,

forming at least one first conductive strip on said pad-mounting surface, said first conductive strip being electrically connected to and extending from said bonding pad in a lateral direction relative to said pad-mounting surface,

forming a first encapsulant layer on said pad-mounting surface and said first conductive strip, and

patterning and etching said first encapsulant layer to form at least one strip-

through-hole in said first encapsulant layer in such a manner that said strip-through-hole exposes a portion of said first conductive strip therefrom;

attaching said semi-package to said die-mounting surface;

forming a dielectric interposer with a die-through-hole and at least one contact-through-hole on said die-mounting surface in such a manner that said die-through-hole receives said semi-package therein and exposes said semi-package therefrom, and that said contact-through-hole is registered with said contact and exposes said contact therefrom;

forming at least one second conductive strip on said interposer and said semi-package in such a manner that said second conductive strip has a first portion that fills said strip-through-hole to connect electrically with said portion of said first conductive strip, and a second portion that fills said contact-through-hole to connect electrically with said contact;

forming a second encapsulant layer on said interposer, said second conductive strip, and said semi-package;

patterning and etching said second encapsulant layer to form at least one bump-through-hole in said second encapsulant layer in such a manner that said bump-through-hole exposes a third portion of said

second conductive strip therefrom; and

forming at least one solder bump which fills said bump-through-hole to connect electrically with said third portion of said second conductive strip and which protrudes outwardly from said second encapsulant layer.

46. The method of Claim 45, wherein said interposer is a resinous packaging substrate.

47. The method of Claim 45, wherein said trace part of said first conductive strip has a first metal layer and includes a nickel sub-layer and a gold sub-layer.

48. The method of Claim 45, wherein said trace part of said second conductive strip has a second metal layer and includes a nickel sub-layer and a gold sub-layer.